

A new distance measure for trapezoidal fuzzy numbers

ABSTRACT

We propose a new distance measure for the space of all trapezoidal fuzzy numbers using centroid point and left/right spread of trapezoidal fuzzy numbers. Moreover, the metric properties of suggested distance measure are investigated. Indeed, we show that for two arbitrary trapezoidal fuzzy numbers if the distance between centroid points and also the distance between left spreads and right spreads go to zero, then two given fuzzy numbers are equal. Consequently, we complete discussion about the relation between fuzzy number and its centroid which is the firstly discussed by Hadi-Vencheh and Allame (2010). To the best of our knowledge, this is first time in the literature that such metric is applied by centroid point.

Keyword: Distance measure; Fuzzy numbers; Metric properties; Right spreads; Trapezoidal fuzzy numbers.